



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Weekly Reports

November 19, 2004



National Aeronautics and
Space Administration

Upcoming Events:

- AMS-02 Integration Meeting - December 7-9, 2004 - CERN (Geneva)
- Thermal Control System (TCS) Delta Critical Design Review (Δ CDR) - December 13-14, 2004 - CERN (Geneva)
- AMS General TIM - January 10-14, 2005 – KSC
- Tracker Thermal Control System (TTCS) PDR - January 2005, CDR - April 2005
- STA Vacuum Case Delivery (on dock at STADCO) - Schedule under review
- Flight Vacuum Case Delivery (on dock at STADCO) - Schedule under review
- AMS-02 Phase II Safety Review - March 2005 - JSC

Upcoming Tests:

- AMS-02 Avionics Functional Interface Test (FIT) - January 2005 – KSC
- Interface Plate Static Test - Date TBD - Location TBD
- Lower Joint Static Test - Date TBD - Location TBD
- STA Acoustic Test - Date TBD - ESTEC - Noordwijk, Netherlands (Schedule under review)
- STA Sine Sweep Test - Date TBD - INFN - Terni, Italy (Schedule under review)
- Full Assembly Modal & Static Tests - Date TBD - IABG - Munich, Germany

Status:

- ***A meeting was conducted with Doug Paletz, President and Jim Hickman, Director of Business Development of STADCO to discuss the delivery schedule for the Flight and Structural Test Article (STA) Vacuum Cases. The purpose of the meeting was to impress upon them the importance of making all deliveries prior to the end of the SEAT Contract. LM Vice President and SEAT Program Manager, Rick Hieb, strongly stated that STADCO needed to review their schedules, talk to their subcontractors, and do whatever necessary to ensure delivery of the Vacuum Cases on or before January 31, 2005. LM offered whatever resources at its disposal to help STADCO deliver on time. A response from STADCO is expected on November 22.



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- ***The Alpha Magnetic Spectrometer (AMS) weld engineer traveled to Winterthur, Switzerland to support a Superfluid Helium (SFHe) Tank Technical Interchange Meeting (TIM). Completion of the central ring (including machining) for the Structural Test Article (STA) Tank is expected in early January 2005. Work on the replacement through-tubes is in progress with expected shipping to Artekno by the end of this November 2004. The SFHe Tank is currently on the Critical Path for the AMS-02 Payload Launch Ready date of September 2007.
- ***The Class I Passive Umbilical Mechanism Assembly (UMA) designated for AMS-02 was received at JSC and placed in Building 421 Bond. A Task Performance Sheet (TPS) is being prepared for transferring the UMA to Bldg 57 for the installation of temporary connectors on the UMA cable. The UMA, with temporary connectors installed, is required for the AMS-02 FIT at KSC.
- LMSO AMS structural engineers completed analyses of the Lower Vacuum Case Support Ring. The sustained stresses are below of the 50% yield allowable required for 7050 aluminum forgings. The sustained stress analysis for the Upper Support Ring will be completed by November 24. The combined sustained and assembly stress analysis results will be documented and included in the final stress report for the Vacuum Case and Unique Support Structure - 02 (USS-02).
- Preparations are continuing for the AMS Avionics and Electronics Functional Interface Test (FIT) scheduled for January 2005 at KSC. Continued coordination of KSC badging, including the appropriate safety training, for FIT participants from LMSO and the Massachusetts Institute of Technology (MIT). An interim schedule was created to track all required tasks. A review copy of the schedule is scheduled for release early next week.
- An internal team review of the FIT test procedures is continuing. A preliminary released version of a subset of these procedures was delivered to KSC. Comments on the procedures, received from Mission Operations Directorate (MOD) personnel, are in review. The remaining procedures are slated for delivery on December 3.
- Work was initiated on the coordination of a pre-FIT integrated test of the AMS-02 TReK workstation with the Enhanced Huntsville Operations Support Center (HOSC) System (EHS) at KSC. The test is tentatively to be performed in the next two weeks.
- AMS design engineers met with the hyper-velocity impact analyst for approval of the basic design for the Transition Radiation Detector (TRD) Gas Supply System debris shields. The analyst has requested an updated IGES model of the AMS-02. Based on the approval for this design, work will be initiated on additional shields for other areas on the AMS.
- Fourteen USS-02 drawings were uploaded to the Engineering Drawing Review System (EDRS) for approval and release. Additional AMS drawings continue to be updated to comply with new drawing format template from the Engineering Drawing Control Center (EDCC).
- The drawings for FIT test cables (STE-03 and STE-06) were released for fabrication. STE cable STE-04 drawing is in review



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- Vacuum Case Milestones

<u>Contract Deliverable</u>	<u>Due Date</u>	<u>Status</u>
Weld Fixture Complete	August 2004	
First Article Conical Flange Complete	October 2004	
STA Support Rings Complete	November 2004	(Machining complete, final inspection in work)
STA Conical Flanges Complete	November 2004	(Machining complete, metal finish in work)
Flight Support Rings Complete	November 2004	
Flight Conical Flanges Complete	November 2004	
STA Line Drill Operations Complete	November 2004	
Weld Development Complete	December 2004	(Qualification tests on hold)
Shipping Fixture Complete	December 2004	(CDR complete)
First Article Weld Complete	December 2004	
STA Match Drill Procedure Complete	December 2004	
STA Weld Complete (for proof test @ STADCO)	December 2004	
STA Vacuum Case Delivery (on dock at STADCO)	Schedule Under Review	
Flight Vacuum Case Delivery (on dock at STADCO)	Schedule Under Review	